

Application No. 10/606,104  
Amendment After Final dated May 5, 2006  
Reply to Final Office Action mailed January 5, 2006

### **REMARKS**

The present Amendment is in response to the Examiner's Final Office Action mailed January 5, 2006. Claims 1, 8, 16, and 31 are amended. Claims 1-36 are now pending in view of the above amendments.

Reconsideration of the application is respectfully requested in view of the above amendments to the claims and the following remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

Please note that the following remarks are not intended to be an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the distinctions identified and discussed below are presented solely by way of example to illustrate some of the differences between the claimed invention and the cited references. In addition, Applicants request that the Examiner carefully review any references discussed below to ensure that Applicants understanding and discussion of the references, if any, is consistent with the Examiner's understanding.

#### **I. PRIOR ART REJECTIONS**

##### **A. Rejection Under 35 U.S.C. §102(e)**

The Examiner rejects claims 8-30 under 35 U.S.C. § 102(e)<sup>1</sup> as being anticipated by *Kinoshita* (United States Patent No. 6,535,537 B1). Because *Kinoshita* does not teach or suggest each and every element of the rejected claims, Applicants respectfully traverse this rejection in view of the following remarks.

*Kinoshita* teaches a ring laser, also referred to as a mesa 10, as shown in Figures 1A and 1B. *Kinoshita* teaches that, "no current passes through the mesa 10 that is the vertical resonator...." Col. 5, ll. 44-45; *also see* col. 5, ll. 49-53 ("At the same time, the lack of current flow through the VCSEL makes it possible to make the MQW structure, which is the active layer

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<sup>1</sup> Because *Kinoshita* is only citable under 35 U.S.C. § 102(e) Applicants do not admit that *Kinoshita* is in fact prior art to the claimed invention but reserve the right to swear behind *Kinoshita* if necessary to remove it as a reference.

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thereof, much thicker than in a conventional VCSEL. As a result, the gain can be greatly increased.”).

In direct contrast, both independent claims 8 and 16 recite the element, “at least two contacts configured to cause current to flow through at least a portion of the vertical cavity surface emitting laser.” Since the Examiner has not shown that *Kinoshita* teaches the apparatuses as presented, Applicants respectfully request that the rejection under 35 U.S.C. § 102(e) be withdrawn. Claims 9-15 depend from claim 8 and claims 17-22 depend from claim 16 and include every element of the claim from which they depend. Therefore, the Applicant respectfully requests that the rejection of claims 9-15 and 17-22 be withdrawn at least for the same reasons as claims 8 and 16.

With respect to claims 23-30 the Examiner has failed to provide a *prima facie* case of anticipation. According to the Examiner on page 5, the method steps set forth in claims 23-30 are product-by-process elements inherent in the disclosure of the product (i.e. the laser). The applicant disagrees and requests citation to authority for such proposition. Under 35 U.S.C. 101, *processes* and *machines* are two distinct types of patentable subject matter. A *machine* is “a concrete thing, consisting of parts or of certain devices and combinations of devices.” *Burr v. Duryee*, 68 U.S. (1 Wall.) 531, 570 (1863). A claim that requires one or more acts to be performed defines a *process*. Claim 23 is related to a “method for making a vertical cavity surface emitting laser” as opposed to the actual laser structure. (Emphasis added). The steps and acts set forth in claim 23 are not product-by-process limitations limited by the structure implied by the steps, but rather, the acts set forth in claim 23 are actual process steps and independently patentable notwithstanding the implied structure. See MPEP 2112.02 and 2113. Thus, the allegation that the process steps are inherent in the product alone does nothing to carry the Patent Office’s burden of setting forth a *prima facie* case of anticipation without addressing the patentably distinct subject matter carried by the process limitations of claim 23.

Even still, the Examiner has not shown that *Kinoshita* discloses the act of “forming at least one trench through the second stack of layers, the quantum well region and the first stack of layers nearly up to the substrate” as set forth in claim 23. Claims 24-29 depend from claim 23

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and include every element of claim 23. Therefore, the Applicants respectfully request that the rejection of claims 24-29 be withdrawn at least for the same reasons as claim 23.

The Examiner rejects claims 31-32 under 35 U.S.C. § 102(b) as being anticipated by *Jiang et al.* (United States Patent No. 5,719,892). Because the Examiner has not shown that *Jiang* teaches or suggests each and every element of the rejected claims, Applicants respectfully traverse this rejection in view of the following remarks.

Independent claim 31 includes the element "at least one layer of the first mirror includes InP....". The Examiner has not shown that *Jiang* teaches this element of 31. Therefore, the Applicants respectfully request that the rejection of claim 31 be withdrawn. Claim 32 depends from claim 31 and includes all of the elements of claim 31. Therefore, the Applicant's respectfully request that the rejection of claim 32 be withdrawn at least for the same reasons as claim 31.

The Examiner rejects claims 31 and 33-34 under 35 U.S.C. § 102(b) as being anticipated by *Eisenbeiser*. (United States Patent Application Publication No. 2002/0158265 A1). Because the Examiner has not shown that *Eisenbeiser* teaches or suggests each and every element of the rejected claims, Applicants respectfully traverse this rejection in view of the following remarks.

Independent claim 31 includes the element "wherein each oxidized layer in each pair of layers has less than 60 percent aluminum before being oxidized....". The Examiner has not shown that *Jiang* teaches this element of 31. Therefore, the Applicants respectfully request that the rejection of claim 31 be withdrawn. Claims 33-34 depend from claim 31 and include all of the elements of claim 31. Therefore, the Applicant's respectfully request that the rejection of claims 31 and 33-34 be withdrawn at least for the same reasons as claim 31.

**B. Rejection Under 35 U.S.C. § 103**

The Examiner rejects claims 1-8 under 35 U.S.C. § 103 as being unpatentable over *Jewell* (U.S. Patent No. 5,719,891).

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According to the applicable statute, a claimed invention is unpatentable for obviousness if the differences between it and the prior art "are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103(a) (2005); *Graham v. John Deere Co.*, 383 U.S. 1, 14 (1966); MPEP 2142. Obviousness is a legal question based on underlying factual determinations including: (1) the scope and content of the prior art, including what that prior art teaches explicitly and inherently; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. *Graham*, 383 U.S. at 17-18; *In re Dembiczak*, 175 F.3d 994, 998 (Fed. Cir. 1999). It is the initial burden of the PTO to demonstrate a *prima facie* case of obviousness, which requires the PTO to show that the relied upon references teach or suggest all of the limitations of the claims. MPEP 2142 (emphasis added).

According to MPEP section 2143:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

(Emphasis added).

According to the Examiner on pages 2, 6, and 7 of the office action, Jewell discloses a vertical cavity surface emitting laser in Figure 5D-5F and 7 with one layer 119 of at least one pair of a plurality of pair layers is an oxidized layer with an aluminum content of at least 60%.

Claim 1 recites the limitation "wherein said one layer has an aluminum content of about 52% before being oxidized...." (Emphasis added). About 52% is less than "at least 60%". Applicants respectfully request that the rejection of claim 1 be withdrawn at least for the reason that the Examiner has not shown that Jewell teaches, suggests, or obviates each and every element of claim 1. Claims 2-7 depend from claim 1. If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d

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1071 (Fed. Cir. 1988). Therefore, the Applicant's respectfully request that the rejections of claims 2-7 be withdrawn at least for the same reasons as claim 1.

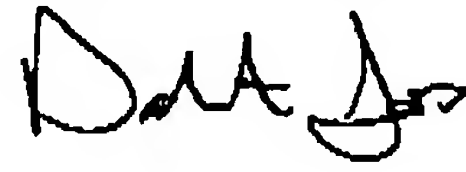
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**CONCLUSION**

In view of the foregoing, Applicants believe the claims as amended are in allowable form. In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, or which may be overcome by an Examiner's Amendment, the Examiner is requested to contact the undersigned attorney.

Dated this 5<sup>th</sup> day of May, 2006.

Respectfully submitted,



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